

Substitute for form 1449/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

**(Use as many sheets as necessary)**

Sheet	1	of	2
-------	---	----	---

PTO/SB/08A (07-05)

Approved for use through 07/31/2006. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

**Complete if Known**

Application Number	10/782,554
Filing Date	February 19, 2004
First Named Inventor	Brooke L. Small
Art Unit	1764
Examiner Name	N/A
Attorney Docket Number	210507US (4081-03900)

## U. S. PATENT DOCUMENTS

[illegible]

## FOREIGN PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No.	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				
TN	BA	EP 1 229 020 A1	08/07/2002	Idemitsu Petrochemical Co., Ltd.		
TN	BB	WO 1998/27124 A1	06/25/1998	E.I. Du Pont De Nemours and Company		
TN	BC	WO 2002/96919 A1	12/05/2002	Shanghai Institute of Organic Chemistry		
TN	BD	WO 2004/078799 A1	09/16/2004	Chevron Phillips Chemical		

**Examiner  
Signature**

**Date  
Considered**

**EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

**If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.**

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/782,554
Filing Date	February 19, 2004
First Named Inventor	Brooke L. Small
Art Unit	1764
Examiner Name	N/A
Attorney Docket Number	210507US (4081-03900)

Sheet

2

of

2

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
JN	CA	International Search Report and Written Opinion, PCT/US2005/005437, July 4, 2005, 13 pgs.	
JN	CB	BROOK L. SMALL and MAURICE BROOKHART, "Polymerization of Propylene by a New Generation of Iron Catalysts: Mechanisms of Chain Initiation, Propagation, and Termination," American Chemical Society, Macromolecules, Vol. 32., April 6, 1999, pgs. 2120-2130.	

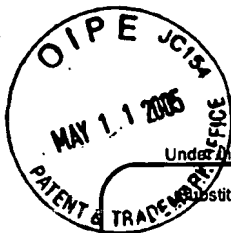
Examiner  
SignatureDate  
Considered

8/4/07

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.



PTO/SB/08A (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Institute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 1 of 4

**Complete if Known**

Application Number	10/782,554
Filing Date	February 19, 2004
First Named Inventor	Brooke L. Small
Art Unit	1764
Examiner Name	N/A
Attorney Docket Number	210507US (4081-03900)

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
TN	AA	US- 4,971,986	11/20/1990	Stanek, et al.	
	AB	US- 5,438,027	08/01/1995	Reagen, et al.	
	AC	US- 5,451,645	09/19/1995	Reagen, et al.	
	AD	US- 5,470,926	11/28/1995	Reagen, et al.	
	AE	US- 5,523,507	06/04/1996	Reagen, et al.	
	AF	US- 5,543,375	08/06/1996	Lashier, et al.	
	AG	US- 5,563,312	10/08/1996	Knudsen, et al.	
	AH	US- 5,689,028	11/18/1997	Lashier, et al.	
	AI	US- 5,763,723	06/09/1998	Reagen, et al.	
	AJ	US- 5,786,431	07/28/1998	Reagen, et al.	
	AK	US- 5,814,575	09/29/1998	Reagen, et al.	
	AL	US- 5,856,257	01/05/1999	Freeman, et al.	
	AM	US- 5,859,303	01/12/1999	Lashier	
	AN	US- 5,919,996	07/06/1999	Freeman, et al.	
	AO	US- 5,955,555	09/21/1999	Bennett	
	AP	US- 5,986,153	11/16/1999	Kallenbach, et al.	
	AQ	US- 6,103,946	08/15/2000	Brookhart III, et al.	
	AR	US- 6,214,761	04/10/2001	Bennett	
	AS	US- 6,380,451	04/30/2002	Kreischer, et al.	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>3</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				

Examiner  
SignatureDate  
Considered

8/4/07

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/782,554
Filing Date	February 19, 2004
First Named Inventor	Brooke L. Small
Art Unit	1764
Examiner Name	N/A
Attorney Docket Number	210507US (4081-03900)

Sheet 2 of 4**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
TN	AT	US- 6,455,648	09/24/2002	Freeman, et al.	
	AU	US- 6,489,497	12/03/2002	Brookhart III, et al.	
	AV	US- 6,534,691	03/18/2003	Culver, et al.	
	AW	US- 6,555,723	04/29/2003	Schiffino	
	AX	US- 2002/0028941 A1	03/07/2002	De Boer, et al.	
	AY	US- 2003/0036615 A1	02/20/2003	Brookhart III, et al.	
	AZ	US- 2003/0050494 A1	03/13/2003	Brookhart III, et al.	
	BA	US- 2004/0180778 A1	09/16/2004	Small	
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>3</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				
TN	CA	EP 1229020 A1	08/07/2002	EPO		
TN	CB	WO 01/10875 A1	02/15/2001	WIPO		
TN	CC	WO 01/58874 A1	08/16/2001	WIPO		
TN	CD	WO 02/00339 A2	01/03/2002	WIPO		
TN	CE	WO 02/28805 A2	04/11/2002	WIPO		
TN	CF	WO 03/011876 A1	02/13/2003	WIPO		

Examiner  
SignatureDate  
Considered

8/4/07

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

**Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.**

Substitute for form 1449/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

**(Use as many sheets as necessary)**

**Complete if Known**

Application Number	10/782,554
Filing Date	February 19, 2004
First Named Inventor	Brooke L. Small
Art Unit	1764
Examiner Name	N/A
Attorney Docket Number	210507US (4081-03900)

Sheet	3	of	4
-------	---	----	---

## U. S. PATENT DOCUMENTS

[illegible]

## FOREIGN PATENT DOCUMENTS

[illegible]

**Examiner  
Signature**

Date  
Considered

**EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

**If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.**

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)	<b>Application Number</b>		10/782,554
	<b>Filing Date</b>		February 19, 2004
	<b>First Named Inventor</b>		Brooke L. Small
	<b>Art Unit</b>		1764
	<b>Examiner Name</b>		N/A
	<b>Attorney Docket Number</b>		210507US (4081-03900)

Sheet 4 of 4

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
TN	DA	Britovek, George J.P., et al., "Oligomerisation of Ethylene by Bis(imino)pyridyliron and -cobalt Complexes," Chem. Eur. J, Vol. 6, No. 12, (2000) pgs. 2221-2231.	X coil/cu
TN	DB	Kumar, R.N., et al., "Mononuclear and Binuclear Complexes of Fe(II) and Cu(II) with 2,6-Diacetyl Pyridine Monoxime and Phenylene Diamine," Asian Journal of Chemistry, Vol. 11, No. 3, (1999), pgs. 964-969.	X
TN	DC	Nelson, S. Martin, et al., "Metal-Ion Controlled Reactions of 2,6-Diacetylpyridine with 1,2-Diaminoethane and 2,6-Diformylpyridine with o-Phenylenediamine and the Crystal and Molecular Structure of a Pentagonal Pyramidal Cadmium(II) Complex containing Unidentate o-Phenylenediamine," Journal of the Chemical Society, Dalton Transactions, Inorganic Chemistry, Vol. 2, (1982) pgs. 407-415.	X
TN	DD	Small, Brooke L., et al., "Highly Active Iron and Cobalt Catalysts for the Polymerization of Ethylene," Journal of the American Chemical Society, Vol. 120, No. 16, 1998, pgs. 4049-4050.	
TN	DE	Small, Brooke L., et al., "Iron-Based Catalysts with Exceptionally High Activities and Selectivities for Oligomerization of Ethylene to Linear $\alpha$ -Olefins," Journal of the American Chemical Society, Vol. 120, No. 28, (1998) pgs. 7143-7144.	
TN	DF	International Search Report and Written Opinion of the International Searching Authority, PCT/US2004/004472, 07/16/2004, 7 pgs.	
TN	DG	Application No. 11/009,916, "Methods for Producing a Hexadentate Bimetallic Complex," Small, Brooke L., Filing Date: 12/10/04, Specification (pgs. 1-92).	X

<b>Examiner Signature</b>		<b>Date Considered</b>	8/4/07
---------------------------	--	------------------------	--------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.